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# A new species and a new record of the *Neohelota laevigata* species group (Coleoptera, Cucujoidea, Helotidae) from southwestern China

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**Abstract:** A new species of the family Helotidae, *Neohelota cheni* **sp. nov.**, belonging to the *N. laevigata* species group, is described from Yunnan Province, China. Habitus and diagnostic characters of the new species are illustrated. Additionally, *Neohelota tibialis* Ritsema, 1893 is newly recorded from China. A taxonomic key and a distribution map of the *N. laevigata* species group in China are provided.

**Keywords:** Cucujiformia, morphology, Oriental region, taxonomy, Yunnan

# 中国西南地区锃新蜡斑甲种组（鞘翅目，扁甲总科，蜡斑甲科）一新种及一新记录种记述

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**摘要：**本文描述了中国云南省的新蜡斑甲属（*Neohelota* Ohta, 1929）一新种——陈氏新蜡斑甲（*Neohelota cheni* **sp. nov.**），该新种隶属于锃新蜡斑甲种组（*N. laevigata* species group）。文中展示了该新种的整体形态和鉴别特征图。此外，本文还首次记录了突胫新蜡斑甲（*Neohelota tibialis* Ritsema, 1893）在中国的分布，并提供中国锃新蜡斑甲种组的分类检索表和地理分布图。

**关键词：**扁甲下目，形态学，东洋区，分类学，云南

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## Introduction

The genus *Neohelota* Ohta, 1929 (Coleoptera: Cucujoidea, Helotidae) contains 70 species distributed in the Oriental and Eastern Palaearctic regions (Lee & Votruba 2014; Lee 2020). Within this genus, six species groups have been proposed: the *Neohelota culta* species group, *N. candezei* species group, *N. guerinii* species group, *N. attenuata* species group, *N. laevigata* species group, and *N. helleri* species group (Lee 2010). In the study conducted by Lee (2010), there are three species in the *N. laevigata* species group, among which only *N. laevigata* Oberthür, 1883 has been reported from China.

In this paper, a new species belonging to the *Neohelota laevigata* species group is described. In addition, *N. tibialis* Ritsema, 1893 is newly recorded from China.

## Material and methods

Morphological observations and the aedeagus dissection were conducted under a stereomicroscope (Olympus SZ2-ILST). Habitus, diagnostic features, as well as measurements were taken using a digital stereomicroscope (KEYENCE-VHX-5000), then modified, annotated, and grouped to plates using Adobe Photoshop 2021. All Chinese common names are translated literally from the Latin names. Labels of type material are cited verbatim.

Materials examined in this paper are deposited at the following institutions:

**CBFU** — Beijing Forestry University, Beijing, China;

**CNU** — Chongqing Normal University, Chongqing, China;

**SYSU** — Sun Yat-sen University, Guangzhou, China.

Measurements and the abbreviations used in descriptions are as follows: body length (**BL**): length between the apex of the clypeus and the elytral apex along the mid-line; head length (**HL**): length between the apex of the clypeus and the anterior margin of the pronotum along the mid-line; head width (**HW**): maximum width of head including eyes; pronotum length (**PL**): length of the pronotum along the mid-line; pronotum width (**PW**): maximum width of the pronotum; elytra length (**EL**): length from anterior margin to apices of the elytra; elytra width (**EW**): widest part of both elytron combined.

## Taxonomy

### Genus *Neohelota* Ohta, 1929

### *Neohelota laevigata* species group

**Diagnosis.** According to the original study (Lee 2010), this species group can be distinguished by its color pattern: Pronotum bronze, same color as elytra, antero-lateral angles yellowish brown; proepisternum yellowish brown; leg yellowish brown with tarsal claws black; elytral apex shape sexually dimorphic. Compared with other species groups, the species in this group have yellowish brown legs rather than the metallic color.

**Key to Males of Species of the *N. laevigata* Species Group (based on Lee 2010)**

1. Protibia without a prominent process near apex ..... *N. laevigata*
   Protibia with a prominent truncate process near apex ..... 2
2. Process near apex of protibia angular ..... *N. tibialis*
   Process near apex of protibia rounded ..... 3
3. Penis narrow, widest at middle, apex widely rounded ..... *N. viklundi*
   Penis wide, widest at base, narrowing towards the rounded apex ..... *N. cheni* **sp. nov.**

## *Neohelota cheni* sp. nov. 陈氏新蜡斑甲

https://zoobank.org/87A745D3-CC0E-4401-BC8F-0D7F7516F453

Figs 1A–D, 2A–G

**Type material. Holotype:** ♂, CHINA: Yunnan: Nujiang Lisu Autonomous Prefecture, Fugong County, Shiyueliang Township, Gadoudi "中国云南怒江傈僳族自治州福贡县石月亮乡嘎斗底", 2400m, 2025.V. 26; JH Chen lgt. (SYSU); **Paratypes:** CHINA: Yunnan: 2♀, same data as holotype (SYSU); 1♀, Nujiang pref., Fugong, Shiyueliang, 5km W of Biluo snow mt. tunnel "中国云南怒江州福贡县石月亮乡碧罗雪山隧道口以西 5 公里", 27.31488N, 98.94377E, 2607m, 2025. VI. 9; HL Shi, C Wang, WQ Yin & JH Chen lgt. (CNU); 1♀, Nujiang pref., Fugong, Shiyueliang, 5km W of Biluo snow mt. tunnel "中国云南怒江州福贡县石月亮乡碧罗雪山隧道口以西 5 公里", 27.31488N, 98.94377E, 2607m, 2025. VI. 9; HL Shi, C Wang, WQ Yin & JH Chen lgt. (CBFU).

**Differential diagnosis.** This species is characterized by a slightly curved protibia, with a prominent rounded process on its internal margin near the apex, antero-lateral angles of pronotum yellowish-brown. For males, the new species is similar to *N. viklundi* based on the prominent rounded process on the apex of the protibia, but can be distinguished by the pronotum without yellowish-brown band along the lateral margin (only antero-lateral angles of pronotum yellowish-brown) (Fig. 2E). It is also similar to *N. laevigata* in pronotum with yellowish-brown antero-lateral angles, but can be distinguished from the latter by the protibia with a prominent process near the apex (Fig. 2F). For females, it can be distinguished from other species in *N. laevigata* species group by its strongly acute and divergent elytral apices (Fig. 1C). For both sexes, dorsal surface of this new species is greenish bronze (Fig. 1A, C), while it is yellowish bronze in *N. viklundi* and blackish bronze in *N. tibialis* and *N. laevigata.*

**Description. Male** (Figs. 1A, B, 2A–G). Body elongated flat. Dorsal surface (Fig. 1A) yellowish bronze; each elytron with two yellow spots. Ventral surface (Fig. 1B) pale yellow. Legs yellowish-brown, with tarsal claws black.

**Head** bronze, trapezoid, distinctly constricted behind eyes; anterior margin densely covered by tiny punctures and remaining surface randomly punctate; ventral surface punctures randomly distributed, significantly larger punctures on the gular area, which is covered with even pubescence. Mentum transverse, nearly rectangular, with anterior margin concave. Antenna 11-segmented, with antennomeres 1–8 yellowish-brown, three distal antennomeres darker and enlarged, much wider than other antennomeres.

**Thorax.** Pronotum (Fig. 2E) nearly trapezoidal, dorsal surface bronze, antero- and posterolateral angles of pronotum yellowish brown, widest at base, sides apically narrowed, abbreviated at middle of base. Pronotal disc sparsely punctate, weakly convex, punctures denser and larger laterally; anterior angles obtuse, moderately protruding anteriad, posterior angles acute; anterior margin convex; lateral margins weakly serrated, posterior margin distinctly bisinuate. Prothoracic hypomera with sparse and faint punctures. Pro-/mesosternum smooth, without punctures at middle; metasternum smooth at middle, with dense punctures laterally. Scutellar shield glabrous, nearly triangular, lateral margins truncate.

**Elytra** bronze, oblong, widest near base, gradually narrowed toward apices; elytron without apical teeth, apex widely rounded. Each elytron has 10 punctured striae (Fig. 2G); the intervals are flat and evenly covered with micro-punctures. There are two yellow spots on each elytron: the anterior one is extremely small, located between the 3rd and 7th striae, while the posterior one is small, situated between the 3rd and 6th striae (Fig. 2G).

**Legs.** Femora surface smooth, weakly dilated. Protibia (Fig. 2F) rounded, with a prominent truncate process near the apex, sparse pubescence on apical one third. Tarsi simple, tarsomeres I–IV clothed with dense pubescence on ventral surface, tarsomere V longer than the combined length of tarsomeres I–IV which bears two rows of symmetrical sparse pubescence on ventral surface.

**Abdomen** slightly convergent from abdominal ventrite I towards apex; abdominal ventrite V (Fig. 2D) with subtruncate apical margin, which bears dense long setae confined to the middle of the apex; apical margin slightly sinuate, with dense short setae. abdominal tergite VIII (Fig. 2C) nearly trapezoidal, slightly transverse, medially emarginate with long setae.

**Male genitalia.** Penis (Fig. 2B) wide, narrowing towards the rounded apex, sides parallel; dorsal lobes with acute apices, projecting from penis, slightly narrower than penis at base, with a deep notch between the connection. Tegmen (Fig. 2A) elongate, widest at middle; middle of apical margin with an acute notch; a small process at the apex of each side; ventral surface with dense, short setae, basal margin truncated, a number of long setae at lateral and outer margins. Internal sac (Fig. 2B) with apical sclerites composed of longitudinal sclerites, surface with dense teeth; medial sclerites composed of one wide, curved sclerite at middle, and one pair of elongate triangular sclerites on each side, mesal angle abruptly curved distally; basal sclerites composed of three longitudinal sclerites, lateral sclerites strongly sclerotized, medially expanded, anteriorly articulated with medial sclerite.

**Measurements (in mm).** BL 8.16, HL 1.20, HW 1.63, PL 1.59, PW 2.26, EL 5.44, EW 2.39, HL/HW 0.73, PL/PW 0.70, EL/EW 2.27.

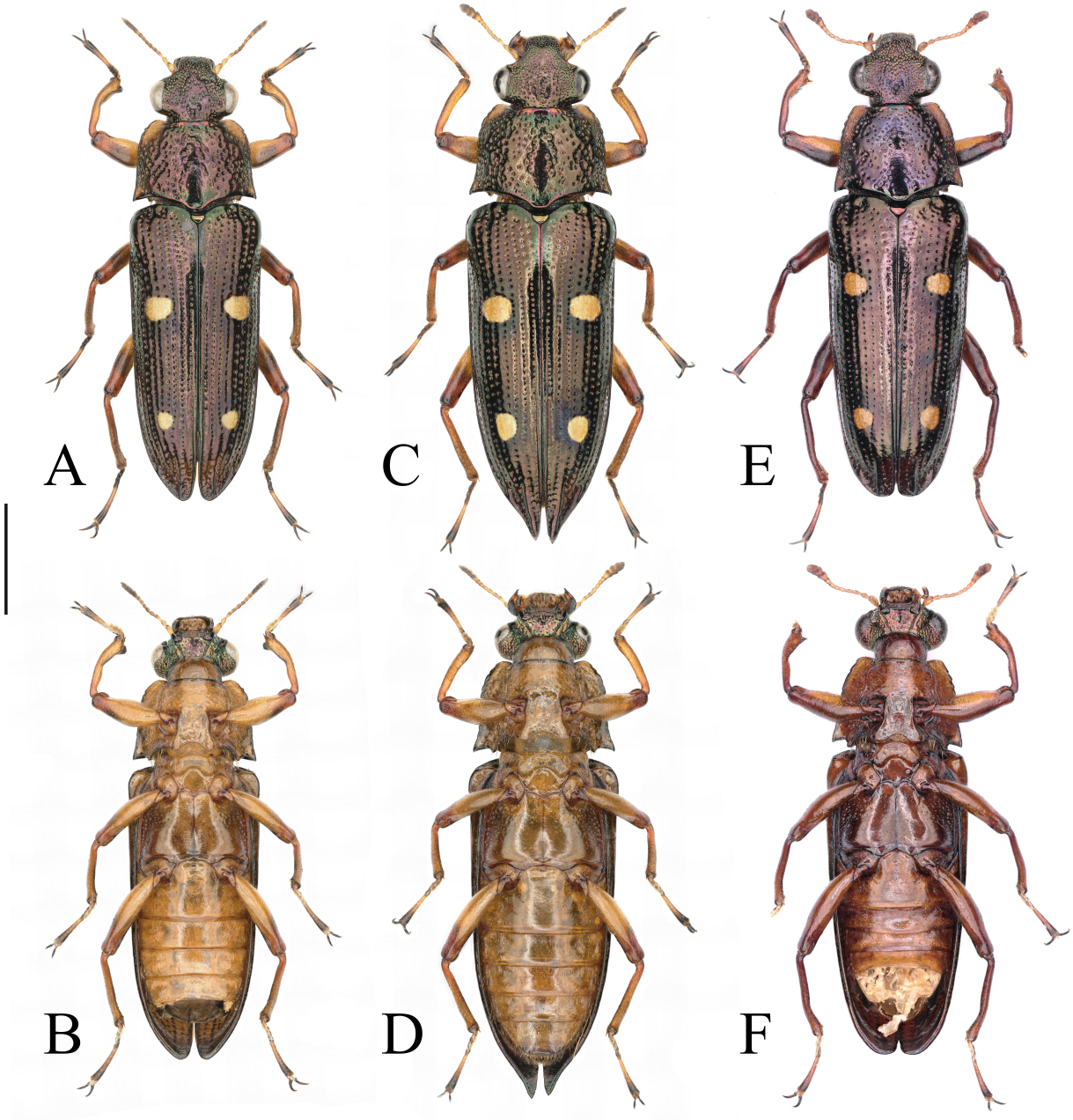


**FIGURE 1.** Habitus of *Neohelota* spp. **A** *N. cheni* **sp. nov.**, holotype, ♂, dorsal view **B** ditto, ventral view **C** *N. cheni* **sp. nov.**, paratype, ♀, dorsal view **D** ditto, ventral view **E** *N. tibialis* from Xizang ♂, dorsal view **F** ditto, ventral view. Scale bars: 2 mm.

**Female** (Fig. 1C, D). Similar to male but with larger body; protibiae straight, without notches; elytral apices tapered, acute, and divergent.

**Etymology.** The new species is dedicated to Mr. Jia-Heng Chen (Beijing, China), an enthusiastic entomologist, who provides substantial support with Helotidae specimens and invaluable suggestions in our taxonomic research of Helotidae.

**Distribution.** China: Yunnan, Nujiang Lisu Autonomous Prefecture.

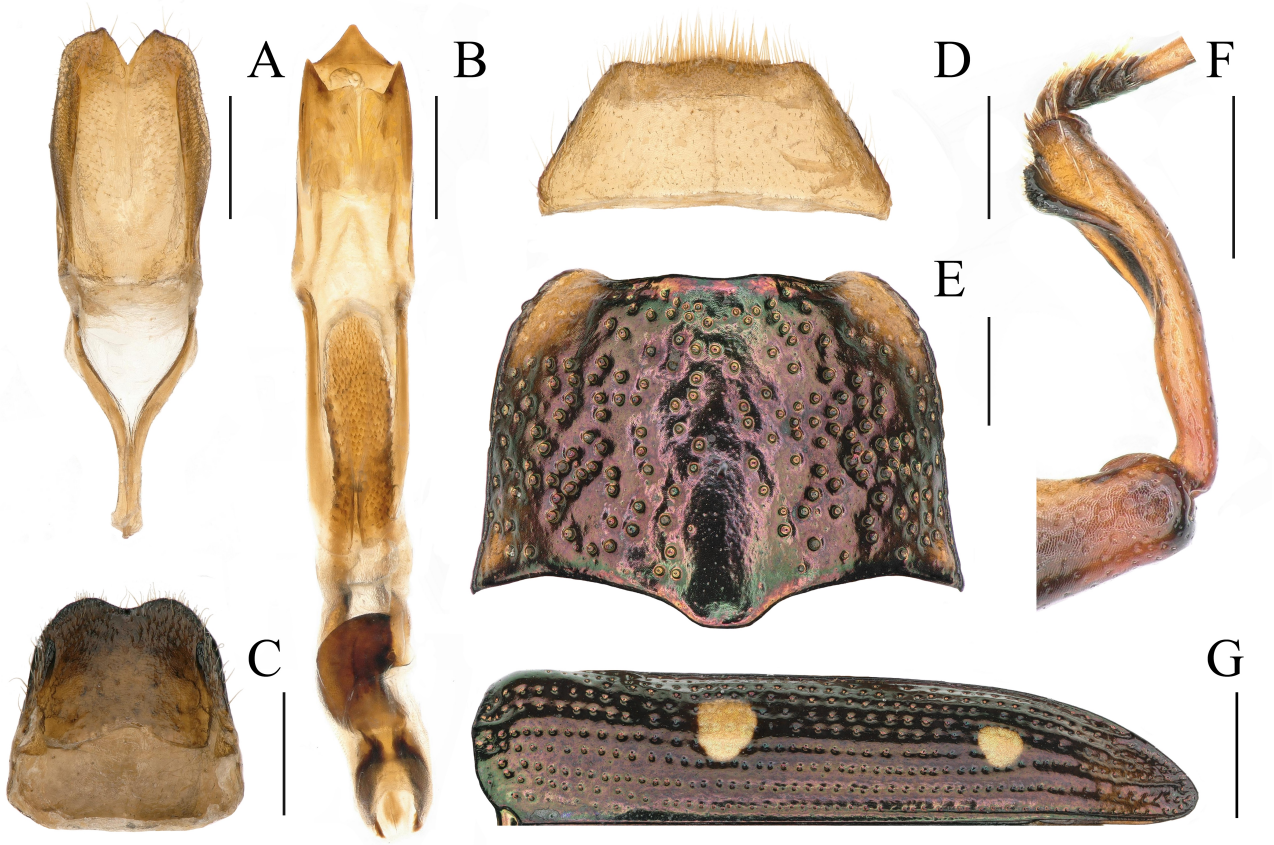


**FIGURE 2.** Diagnostic characters of *Neohelota cheni* **sp. nov.**, holotype **A** tegmen **B** penis and internal sac **C** abdominal tergite VIII **D** abdominal ventrite V **E** pronotum **F** protibia **G** right elytra. Scale bars: 0.2 mm.

## *Neohelota tibialis* Ritsema, 1893 突胫新蜡斑甲

Figs 1E, F

*Helota tibialis* Ritsema, 1893a: 136; Ritsema 1893b: 160; Ritsema 1894: 98; Ritsema 1911: 106; Ritsema 1915a: 134; Ritsema 1915b: 234; Iakobson 1915: 900; Chûjô 1975: 290; Wegrzynowicz 2000: 405.

*Neohelota tibialis*: Kirejtshuk 2000: 30; Lee 2010: 506.

**Material examined:** 1♂, CHINA: Xizang: Nyingchi City, Bayi District, Pailong Village "中国西藏林芝市巴宜区排龙村", 2021. VI. 2; Si-Yao Huang lgt. (CNU).

**Diagnosis.** This species is characterized by the blackish bronze in dorsal surface (Fig. 1E), the presence of a prominent angular process near the apex of the protibia, and a yellowish-brown band along lateral margin of the pronotum.

**Measurements (in mm).** BL 8.96, HL 1.39, HW 1.79, PL 1.84, PW 2.48, EL 5.83, EW 2.68, HL/HW 0.77, PL/PW 0.74, EL/EW 2.17.

**Distribution.** China (**new country record**): Xizang; India; Nepal; Vietnam.

## Discussion

Few observations and records of *Neohelota* from China have been reported, and the biology of this genus remained unknown until Lee & Satô (2006) studied Helotidae species in Taiwan. The study indicates that adults of the genus are frequently found on flowers, suggesting that members of *Neohelota* may be anthophilous. Moreover, specimens of the genus can also be collected by light trapping (several specimens of *Neohelota* were collected by light trapping, Jia-Heng Chen, personal observations), indicating that members of this genus also exhibit phototaxis.

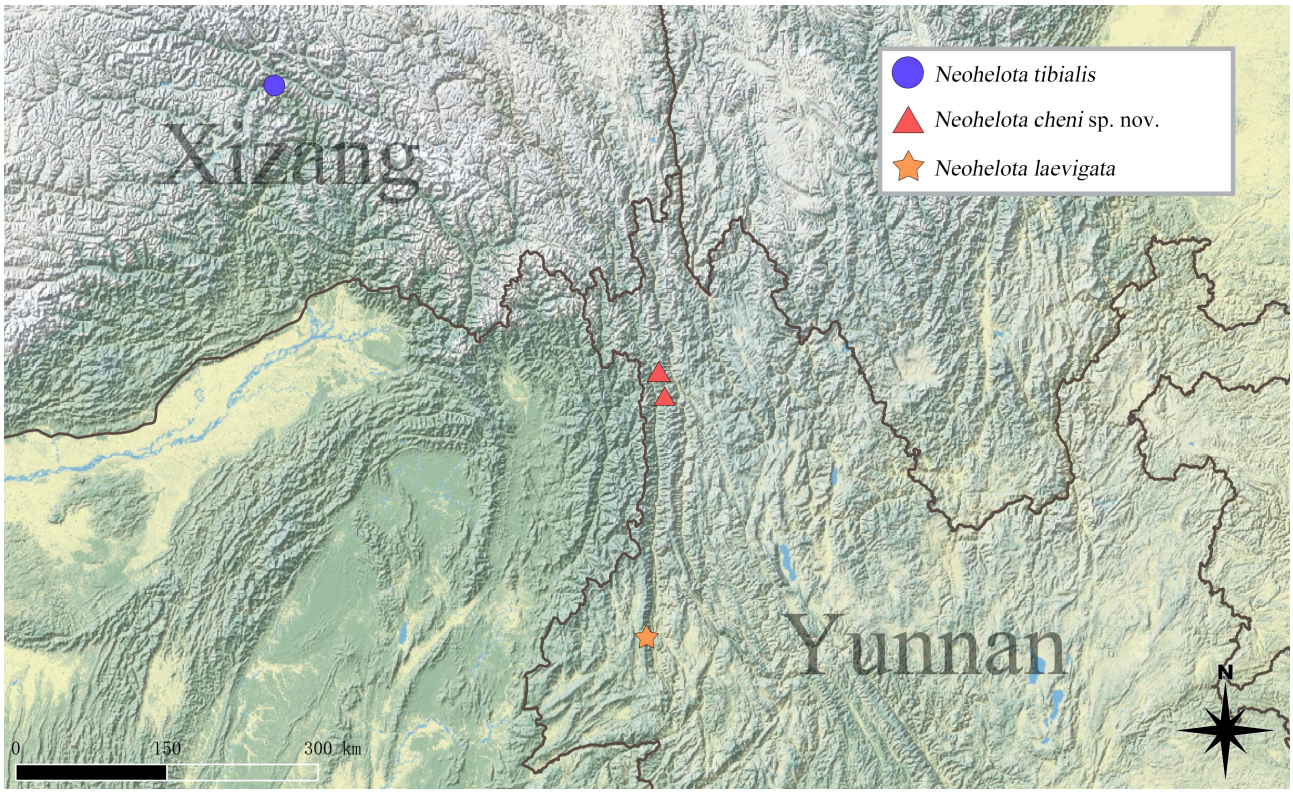


**FIGURE 3.** Distribution map of the *Neohelota laevigata* species group in southwestern China.

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## Additional information

**Author contributions:** Conceptualization: T-X Gu. Project administration: T-X Gu. Resources: T-X Gu. Supervision: Y-Z Huang. Visualization: T-X Gu. Writing–original draft: T-X Gu. Writing–review and editing: Y-Z Huang & T-X Gu.

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